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A Statistical Physics Implementation of Coase's Theory of the Firm

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Abstract

We present a stochastic, dynamic model of firm growth that captures the essential features of Coase's theory of the firm and reproduces important statistical regularities in firm size and growth. For the model to generate these statistical regularities, the parameters must be tuned so that firms involved in "unrelated" activities evolve. Thus, at the same time that the model predicts the statistical properties of firm growth, it suggests that attempts to validate Coase's theory at the level of the individual firm might be futile. The model draws on models of critical phenomena from statistical physics, the motivation being that the observed statistical properties of firm growth are similar to the statistical properties of physical systems near their critical point.

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